## Remarks/Arguments

The Examiner is thanked for the careful review of this Application. The present application is a Request for Continued Examination (RCE) filed under 37 CFR § 1.114 for U.S. Patent Application Number 09/895,566 filed on June 29, 2001. Applicants submit this Amendment in response to the Final Office Action dated September 12, 2003 and the Advisory Action, dated December 9, 2003.

Claims 1-10 and 16-24 are pending after entry of the present Amendment. Claims 11-15 were previously cancelled. New dependent claims 22-24 were added.

**Rejections under 35 U.S.C. § 103:**

The Office has argued that Cain teaches implementing DC-bias monitoring to detect etch endpoint of the dielectric layer.

It is respectfully submitted that Cain teaches using DC-bias compensation endpoint detection and not bias compensation endpoint detection, as defined in the claimed invention. One of ordinary skill in the art is well aware of the differences between the two different methods. In Cain, the DC-bias compensation method generates a signal when a change occurs in the DC-bias of plasma in the chamber. More specifically, Cain asserts that the DC-bias of the plasma defined between a top electrode and bottom electrode of the etch chamber changes as etching the SiN layer is commenced.

In the subject application, as set forth in paragraphs 6-8, bias compensation is a method for regulating the voltage present on the wafer, and not the plasma. More specifically, a predetermined bias compensation signal reflecting the changes in the resistance of the wafer is generated due to the creation of an electrical path between the plasma and the wafer. For instance, the exemplary bias compensated bi-polar ESC etch system described by Applicants includes an ESC chuck having two electrodes. In this system, electrostatic forces are generated between the positive and negative electrodes of the ESC chuck and their respective overlaying regions of the wafer providing equal electrostatic forces between the plasma and each of the positive and negative poles.

Even if the DC-bias compensation of Cain and ESC bias compensation endpoint detection of the claimed invention were the same (a proposition with which Applicants disagree at least for the reasons noted above), modifying the improved contact etching

technique of Cain using the DC-bias compensation would render the improved method of Cain unsatisfactory for detecting etch endpoint for at least three reasons.

First, determining etch endpoint of the dielectric layer of Cain is very difficult due to the presence of the SiN stop layer on the substrate surface. Specifically, it is well known by those having ordinary skill in the art that DC bias-compensation cannot detect end point by detecting the presence of the SiN layer. That is, a detectable signal generally cannot be produced simply by starting etching of the SiN layer. Rather, the a signal may not be detected until the SiN layer has been etched and the underlying substrate surface has been exposed. In fact, it is well established between people of ordinary skill in the art of semiconductor fabrication that optical emission endpoint detection is the method of choice to detect the commencement of SiN etching process. For this reason, Cain teaches the preferred use of optical endpoint detection.

Second, even if the DC-bias compensation could detect the presence of the SiN layer (again, a proposition with which Applicants disagree), using DC-bias compensation would not generate a detectable signal when using a low-power (e.g., 100 watt) plasma etch. Particularly, in column 8, lines 45-49, Cain teaches using low power plasma etch or wet etch to remove the thin stop layer so that the underlying substrate is not etched or damaged to any significant degree. Cain specifically discourages one of ordinary skill in the art from using high power plasma etch to etch the SiN layer (because the underlying substrate can be etched). In order to use DC-bias compensation, a much higher power level would be needed in order to get good endpoint signaling. Thus, substituting DC-bias compensation with the teaching of low power would not render an operable teaching.

Third, contrary to Cain wherein two different etch steps (a first step using a high power and a second step using a low power) are performed, in the claimed invention, a single etch process is performed using a single power level throughout plasma etching of the dielectric layer. More specifically, a single power level (examples described in the subject application can be 1100 or 1400, bottom and top power, respectively) is used to etch through the dielectric layer in one step until the surface of the substrate is exposed. In this manner, due to the use of the high power, the bias compensation voltage can be monitored easily and the endpoint signaling change can be easily detected.

Accordingly, the proposed modification to Cain prevents Cain from providing a detectable etch endpoint signal. Thus, Cain lacks the suggestion or motivation to make the modifications proposed by the Office. See M.P.E.P. § 2143.01.

Independent claim 8 has been amended to recite that the ESC bias compensation voltage is monitored. New dependent claims 22-24 further limit each of the respective independent claim by specifically reciting that the bias compensation voltage is the ESC bias compensation voltage.

Therefore, it is respectfully submitted that independent claims 1, 6, 16, and 21 are patentable under 35 U.S.C. § 103(a) over the cited prior art. In a like manner, dependent claims 2-5, 7-10, 17-20, and 22-24 which incorporate each and every element of the applicable independent claim are patentable under 35 U.S.C. § 103(a) the cited prior art for at least the same reasons discussed above.

In view of the foregoing, Applicants respectfully submit that all of the pending claims 1-10 and 16-24 are in condition for allowance. Accordingly, a Notice of Allowance is respectfully requested. If the Examiner has any questions concerning the present Preliminary Amendment, the Examiner is kindly requested to contact the undersigned at (408) 749-6900, ext. 6913. If any additional fees are due in connection with filing this Amendment, the Commissioner is also authorized to charge Deposit Account No. 50-0805 (Order No. LAM2P258). A duplicate copy of the transmittal is enclosed for this purpose.

Respectfully submitted,
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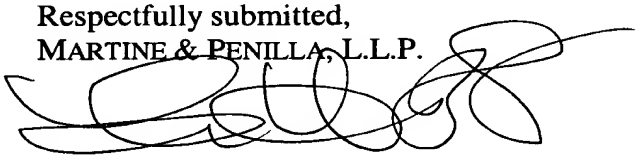

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